DOCUMENT RESUME

ED 288 024 CE 048 890

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TITLE LPN Analysis in the Health Industry.

INSTITUTION Kentucky Univ., Lexington. Coll. of Education.

SPONS AGENCY Kentucky State Dept. of Education, Frankfort. Office of Vocational Education.
PUB DATE 87
NOTE 91p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Curriculum; *Educational Needs; *Labor Needs; Labor Supply; *Nurses; *Nursing Education; *Outcomes of Education; Postsecondary Education; Program Effectiveness; *State Programs
IDENTIFIERS *Kentucky

ABSTRACT

The health care industry has undergone a great many changes in the past several years: changes in technology, regulations, payment procedures, type of client, and personnel needs. A study attempted to answer the question, "What part will the licensed practical nurse (LPN) have in the health care industry of the future?" In Phase One of the study, data available from the Kentucky State Office of Vocational Education were analyzed to formulate tentative findings on the need for LPNs and the success of the program in the state. The results suggested that the number of LPN graduates in Kentucky and the number of LPNs demanded by industry were about equal. Ninety-five percent of those who complete the program pass the license exam on the first try. Thus, the program has been successful in preparing students to pass the examination and gain employment. In Phase Two of the study, data were provided to address the questions raised in the Phase One report. In order to accomplish this task, a review of pertinent literature regarding nurse staffing both in the health care journals and the economic journals was included. Additionally, a survey of three target employers (hospitals, home health agencies, and nursing homes) was conducted. From the survey, the researchers attempted to ascertain the present and future hiring needs of the industry and the effects on health care cost if the LPN positions were to be eliminated. Also, current LPN students were surveyed to obtain a socioeconomic profile of the LPN student to verify a conclusion from the Phase One report that the Kentucky LPN programs were helping an economically disadvantaged segment of the population. Tables are included. Appendixes consist of survey instruments, support letters, and the Phase One report. (KC)

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M3X-T1800-4817-0541-87-30

LPN ANALYSIS IN THE HEALTH INDUSTRY

Funded by:
The Office of Vocational Education
Kentucky State Department of Education
Project Number: T1800-4817-M3X

Project Number
12-33-540-DCCJ-04-04-M3X-T1800-4817

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The Research reported herein was performed pursuant to a contract with the Commonwealth of Kentucky, State Department of Education, Office of Vocational Education. Contractors undertaking projects under such sponsorship are encouraged to express freely their professional judgement in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official State Department of Education position or policy.

Kentucky Department of Education
Alice McDonald, Superintendent
1987

ACKNOWLEDGEMENTS

The project director wishes to express his deepest appreciation to a number of individuals who contributed to the completion of this research project.

First, the able assistance of Mr. Mark Lunn, the Research Assistant for the project, is recognized. Mark provided the lion's share of the work required to mail the survey instruments, do the data analysis, and prepare the final report.

Also of great value to the project was the support and help provided by three professional associations and their executive director or administrator: the Kentucky Association of Health Care Facilities, Mr. James Judy; the Kentucky Hospital Association, Mr. Bill Conn; and the Kentucky Home Health Care Association, Ms. Nileen Verbeten. These individuals reviewed the data collection instrument and provided support letters encouraging their members to respond to the survey.

Of particular value in the preparation of the final report copy were the efforts of Dr. Ron Powell and Ms. Louise Jackson. Their expertise in word processing and editing were extremely beneficial.

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ABSTRACT

The health care industry has undergone a great many changes in the past several years: changes in technology, regulations, payment procedures, type of client, and personnel needs. The thrust of this report is an attempt to answer the question, "What part will the licensed practical nurse have in the health care industry of the future?"

One of the goals of Vocational Education in Kentucky is to provide students with the occupational skills needed by employers. In order to achieve this goal the program must continually reassess the needs of the market place. As the technology and trends in the workplace change, so must Kentucky's vocational preparation programs; new technology must be incorporated and appropriate programs must be added or dropped as the demand for workers change.

In phase one of this study, data available from the State Office of Vocational Education (OVE) were analyzed to formulate tentative findings on the need for LPNs and the success of the program. The results suggested that the number of LPN graduates and the number of LPNs demanded by industry were about equal. Ninety-five percent of those who complete the program pass the license exam on the first try. Thus, the program has been successful in preparing students to pass the examination and gain employment.

In Phase Two of this report, data were provided to address the questions raised in the Phase One report. In order to accomplish this task, a review of pertinent literature regarding nurse staffing both in the health care journals and the economic journals has been included. Additionally, a survey of three target employers: (1) hospitals, (2) home health agencies, and (3) nursing homes was conducted. From the survey, the researchers attempted to ascertain the present and future hiring needs of the industry and the effects on health care cost if the LPN positions were to be eliminated. Also, current LPN students were surveyed to obtain a socio-economic profile of the LPN student to verify a conclusion from the Phase One report that the LPN program was helping an economically disadvantaged segment of the population.

INTRODUCTION

The practical nurse, as a licensed health care practitioner, came into being during World War II as an answer to a chronic nursing shortage. The LPN has since developed into a much utilized link in health care. During the last forty years, much of the basic, hands-on care to the sick and elderly has been provided by LPNs. The Kentucky Nurse's Association (KNA), in conjunction with the American Nurse's Association (ANA), has requested that the state enact legislation which would in effect eliminate LPNs as licensed health care providers. Whether this is advisable, inadvisable, prudent, or proper, is not the intent of this study. The intent of this study is to ascertain the perceptions of health care providers as to the staffing needs of health care workers at whatever professional or preparation level. What and who do they feel are needed?

The so called "entry into practice legislation" would create two levels of nursing, the professional nurse trained in a four-year bachelor degree program and the technical nurse trained in a two-year associate degree program. Currently, both the bachelor degree and associate degree graduates take the same license examination for Registered Nurse. The LPN takes a separate LPN examination. The position of the ANA is that if nurses hope to receive recognition as professionals, the RN must have four years of training (B. S. Degree) and the technical nurse must have two years of training and an associate degree.

From the standpoint of employers in acute care and in urban hospitals, there has been a movement over the last several years to hire more RNs as opposed to LPNs. (Throughout this report, RNs refer to both associate and bachelor degrees as RNs, because the effect of the legislation would be that only RNs as we know them would be hired). The argument behind the philosophy of hiring more RNs is that as medical technology advances, the proportion of duties which LPNs are trained to perform decreases, and the RN becomes more cost efficient.

Objectives

The purpose of Kentucky's Vocational Education program is to provide Kentuckians with the skills needed in today's job market. As the needs of the market place change, the programs also must change to meet those needs. If, as some believe, the position of LPN is becoming obsolete, then the 15 public LPN training programs could be discontinued and the resources be used to train students in other occupational areas. If this is not the case, and a demand for LPNs does exist, how well is the current program meeting the needs of employers? The basic purpose of this research project is, therefore, to provide data relative to which situation exists and to aid in answering the program question. Should the LPN program remain the same, be changed, or be discontinued?

Phase One of this project analyzed current and existing data about the LPN program in Kentucky. The tentative conclusions reached in the Phase One report are the following:

1. While it is, of course, desirable to increase the level of preparation for both professional and technical nurses, there remains a need in the health care industry to retain the position of the Licensed Practical Nurse.

2. Existing manpower data support the conclusion that additional LPNs will be needed in future years.

3. LPNs trained in Kentucky's existing programs appear to be adequately performing those nursing services which they are authorized by law to perform.

4. There is a consensus that health care costs would increase if the LPN nursing level were eliminated. An objective of the health care industry is cost containment.

5. Rural areas might well suffer nursing shortages if the LPN nursing level were eliminated.

6. It appears that nursing homes and extended care facilities would be affected most if the LPN level were eliminated.

7. The LPN program is more clinically intense than the ADN programs. In 11 months, the LPN probably receives more clinical training than does the ADN in the two-year program.

8. Partly due to the increasing costs of health care, there appears to be a trend toward more home health care, resulting in implications for both the LPN and the RN.

9. Our elderly are living longer, thus increasing the need for more long-term care facilities.

--Will RNs be attracted to the routinized care of the chronic client?

--Can nursing homes and extended care facilities afford the added cost of an all-RN staff?

10. A high percentage of program graduates are placed in the industry.

11. A high percentage of program completers pass the LPN licensure examination.

12. There are a variety of nursing duties to be covered, some less desirable than others. Would the RN be prepared to accept the responsibility for doing the labor-intense tasks now assigned to the LPN?

13. A final "tentative" conclusion is difficult to express and probably controversial to discuss. Based on the limited data gathered to date, it appears that there presently exists a match between the needs of the job, the LPN programs, the individuals who enter the program, and ultimately the industry. Many program enrollees tend to be somewhat older than persons entering RN training; they tend to come from economically disadvantaged settings; many have been on some type of public assistance; they appear to be use to hard work; and they will do the lower level tasks assigned to RNs. LPN training and employment provide a way for them to succeed, particularly in rural settings where the schools and the county's health care facilities are major employers. They have an opportunity to become taxpayers. Thus,

it appears that the LPN is both needed by and serving the health care industry, while at the same time the opportunity provides a social benefit to the LPN.

In Phase Two of this report, an attempt has been made to confirm or disprove the conclusions reached in Phase One. In order to do this, data have been collected from three sources. (1) A review of the literature was conducted concerning the effects of an all-RN staffing pattern, the nurse labor market, and other areas involving LPNs. (2) Three major groups of health care providers were surveyed to determine the present and future hiring needs of the industry, and to ascertain whether present graduates were adequately trained to meet the needs of the industry. And (3) LPN students were surveyed to determine if the conclusions reached concerning their background and status were valid.

The following section provides a review of pertinent literature, summarizing journal articles concerning nurse staffing.

LITERATURE REVIEW

The question of the continuance of the LPN was precipitated by the KNA and ANA attempts to change the entry into practice and subsequent licensure requirements for nursing. It has been proposed that the title of Registered Nurse (RN), or professional nurse, would apply only to graduates of four-year bachelor degree programs, and the technical nurse would be trained at the two-

year associate degree level, thus eliminating the LPN title and program. Since 1965, The American Nurses Association has had as a goal to change to a two-tier licensure procedure, and has a timetable that calls for all states to have this type of licensure in effect by 1995 (American Journal of Nursing, Feb. 1985). Forty-eight state nursing associations have passed resolutions favoring the entry into practice legislation. However, according to an April 1979 poll in the journal RN, 7 out of 10 nurses oppose the professional/technical split; thus, the proposal which is favored by the ANA apparently is opposed by the majority of nurses. The Kentucky Nurses Association faced similar opposition when it attempted to pass a Nurse Practice Act in the Kentucky General Assembly in 1986. The KNA conducted eight public hearings throughout the Commonwealth in January and February of 1986 and in the words of KNA President, Jean Duncan, "From the opposition voiced at the hearings, it became evident that it would be impossible to mobilize adequate support to get the legislation through the House and Senate Committees," (Kentucky Nurse, March/April 1986 p. 2). The opposition was largely from the LPN and associate degree (ADN) programs. The KNA also opposed any "change that would allow granting of associate degrees in nursing, outside of institutions of higher learning" (ASN, Feb. 1985 p. 202) Thus, the KNA proposition would mean the elimination of Kentucky's 15 public and two private LPN programs.

Entry into practice is one issue which generates a great deal of emotion, and opinions vary greatly on its effect on quality and cost of health care. The remainder of this literature

review will attempt to look at the technical issues involved with nurse staffing, including a determination of nurse staffing, cost-benefit studies of all-RN staff, the economic issues involved effecting the labor supply of nurses, and areas in which LPNs have proven most useful.

The issue of how to determine the optimal level of nurse staffing has been widely reviewed in the literature. Optimally, this is determined by achieving an acceptable level of care at the lowest cost. The difficulty arises when looking at what is an acceptable level of care. The simple answer is that more care is always better and there is no "acceptable" level of care. But, with the budget constraints as they currently exist in the health care area, this may no longer be practical.

There are two conflicting trends in health care. On the one hand, the increase in technology and trends in health care have increased the cost; concurrently, the economic resources to pay for that health care have decreased. Given these two trends, the question of nurse staffing is given greater importance. The nurse administrator is forced to decide what amount, both time and level, of nursing is required to provide the needed health care. Hinshaw et. al. (1977) attempted to get at the question of how to determine the optimal level of nursing care. (The method used was to look at nursing activities first from the standpoint of the nature of the subject under consideration--whether it is well understood or not, and secondly at the nature of technology utilized--whether it was a routine or nonroutine activity.). From the combination of these two criteria a

determination was made whether a trained technician or a professional was required to perform a given task. (The less understood and more nonroutine an activity, the higher the level of professional care needed to perform the task.) Hinshaw broke nursing care into eight areas:

1. Activity: Relates to the nursing care required to support the patient physically in relation to his present level of activity
2. Hygiene
3. Feeding
4. Medications
5. Vital signs
6. Treatment and medical orders
7. Physical or mental impairments: Relates to the nursing care required to communicate effectively with the patient or his family
8. Emotional components

Using a patient classification system developed at the University of Arizona, Hinshaw found that four areas were included in the routine category: vital signs, feeding, hygiene, and activity. The other four areas were considered nonroutine. The focus of Hinshaw's study was to determine if nursing requirements differed among types of hospitals (university vs. private vs. community medical centers). The results revealed that the university hospital required a higher proportion of RNs per patient day. The reasons given for this finding were that the level of acuity was higher at a referral hospital and the university hospital did

not provide the patient with a private physician; thus, more of the responsibility for the patient's emotional needs was placed on the nurse.

The importance of the Hinshaw study lies in the fact that it showed that by looking at the types of nursing care required at an institution an optimal staffing level can be ascertained. Each health care institution must be considered individually to determine the level of staffing required.

Levine and Phillips (1975) attempted to determine what variables need to be considered in determining the level of staffing within an organization. Looking at the regressions run for nonprofit, nonteaching hospitals, the results were:

Y_1 (total nursing hours) = 7.99 + .04 (total number of facilities) + 1.28 (Fraction high tech to total) + 31.37 (total admissions) - .071 (length of stay) - 2.53 (occupancy) + .065 (birth per statistical bed) .084 (emergency visits per admission) + .62 (surgical operations per admissions) - 4.75 (adjusted patient days) .35 (SMSA).

Y_2 (RN hours) = .325 + .102 (number of high tech facilities + 21.42 (total admissions) - 1.08 (occupancy) + 1.53 (bassinets per statistical bed) + .02 (total visits per admission) + .646 (surgical operations per admission) - 2.60 (adjusted patient days) + .004 (RN's per 100,000 population) - .002 (aides etc per 100,000 population) + 48.74 (per capital income)

Y3 = 1.80 + .023 (total number of facilities) + 9.25 (total admissions) - .024 (length of stay) + .043 (emergency visits per admission) + .003 (statistical beds) - 2.25 (adjusted patient days) - .002 (RN's per 100,000 population) + .006 (LPN's per 100,000 population) - .002 (aides etc. per 100,000 population) - 8.82 (per capita income)

There are several significant results in Levine and Phillips' findings. First, even though the number of RN hours was positively influenced by the number of high technology facilities, the number of LPN hours was not affected positively or negatively as might be expected. Total admissions was highly significant for both groups due to the fact that the amount of nursing was greater at the initial portion of a hospital stay, decreasing with the length of stay, thus the negative coefficient on adjusted patient days. The negative coefficient for RNs per 100,000 population for the LPN equation suggested that substitution takes place, RNs for LPNs as the population of RNs increases. The same was not true when the proportion of LPNs increased. There did not seem to be any substituting of LPNs for RNs. The per capita income variable was highly positive for RN hours and negative for LPN hours. This suggested that there was a strong association between high income areas and RN employment and low income areas and LPN employment. This implied that eliminating LPNs could take health care away from lower income groups.

The Levine and Phillips' model presented a statistical model by which optimal nurse staffing levels might be determined.

Discussed in the next three papers are situations in which the nurse staffing levels were changed and the effects of those changes on patients and the nursing staff were discussed.

Atwood and Hinshaw (1977) looked at two questions, "What is the direct effect of the staffing change on nursing staff performance and satisfaction?", and "What is the indirect effect of the staffing change on health care outcomes and on client satisfaction with care?" (p. 238). They looked at a situation where a hospital with a variable staffing pattern with different types of personnel changed to an essentially all-RN staffing pattern. They evaluated the effects of this change on the nursing staff from three points--job satisfaction, satisfaction with peer group, and perceived competency in delivering care. "Competency was defined by the nursing staff's judgment of their colleague-group's ability in a number of areas: competency in administering treatments and medications, providing personalized care and information to clients, cooperation with other colleagues and personnel, bringing creativity to their work, and the general quality of care delivered" (p. 238).

The patient's satisfaction with their care was assessed on three levels: satisfaction with the technical skill level, with the teaching received from the staff, and with the trust developed between themselves and the staff. An indirect method of assessing patient care was also used comparing audit data taken from Kardexes, with standards set for the care planning process.

Atwood and Hinshaw used a multiple indicator method which was defined as the use of "two or more conceptual and corresponding empirical indices used as predictors (independent variables) or criteria (dependent variables) which may or may not index a single construct on a given model or paradigm. Methodologically, multiple indicators are one alternative for increasing measurement sensitivity and precision." (p. 240). The effect on the nursing staff was an increase in job satisfaction. The quality of care indicators were all unchanged. The patient outcomes showed a decrease in patient's satisfaction with the technical skills and trusting aspect of nursing care.

The Atwood and Hinshaw study did not substantiate the claim that a switch to an all-RN staff would increase the quality of care provided. They found such a change to have no effect either positive or negative on the quality of care.

Barrett (1985) concluded that in the case of a hospital in which the proportion of RNs to LPNs was decreased, the job satisfaction of the RNs increased. The reason given for this result was that since more LPNs were hired, the RNs were freed from performing duties which were considered activities of daily living and, therefore, the nurses had more time to devote to the medical needs of their patients. This finding would appear to be in direct conflict with the previously discussed Atwood and Hinshaw study. However, the hospital settings were not described.

Molke and Schreiber (1982) looked at a switch to primary nursing, a part of which included the increase in the number of LPNs. They found that the LPN was needed and contributed positively to the care given the patient. "Eventually we increased our non-professional staff. . .We found that each of these individuals had his/her own abilities and talents which could be used in caring for patients under the supervision of a professional staff member." (p. 34)

Analysis of literature on nurse staffing revealed that there are many variables that must be considered when deciding on staffing levels. These variables include such aspects as type of hospital and work, income level of the area, and the particular needs of a given nursing staff. Thus, the literature implies that there is no one staffing method that is applicable to all hospitals or wards within a hospital.

Assuming that a staffing mix could be determined which would provide for an optimal level of care, it must then also prove to be cost effective. In today's economic climate and as the resources to pay for medical care decline, cost containment becomes increasingly important. The literature on cost-benefit analysis in nurse staffing levels is very extensive, especially in the area of the effects of an all-RN staff on cost.

Prescott and Sorenson (1978) outlined problems in joint, cost-benefit analysis in the health care setting. The major difficulty arose in that health care facilities deal with qualitative rather than quantitative outcomes. Qualitative, non-

monetary outcomes such as lives saved or illnesses cured did not lend themselves to the quantitative terms required of most forms of cost-benefit analysis. Prescott suggested a variant of cost-benefit analysis, cost effectiveness analysis, which links monetary inputs (cost) to non-monetary inputs to analyze the benefits relative to cost produced by a particular program.

The first task in implementing cost-effectiveness analysis was to identify the objectives or treatment goals to be achieved by a program. If the nurse administrator wished to study the effects of primary vs. team staffing, the effects on staff, patients, and other parties must be enumerated.

After selecting suitable treatment objectives, the research task was to develop reliable and valid operational measures of these objectives. "The purpose of outcome measurement in cost effectiveness analysis is to compare homogeneous groups of clients along some common dimensions" (p. 22). The measurement scale must be global, as opposed to client-specified in order that the outcome of a program change can be adequately judged.

Once a measurement scale for pre- and posttesting of clients has been determined, the group must be controlled in such a way that any changes which are rated can be adequately determined to be the effect of the change in treatment patterns.

To determine effectiveness, the model requires a set of objective, valid, and reliable measures; the representativeness of pre-treatment groups, the study sample; and an adequate research design to support the assumption of causality.

On the cost side, all costs which are associated with staffing levels must be considered; these include not only direct costs such as salaries and benefits, but also such costs as administrative and recordkeeping expenses.

If the effectiveness and cost have been adequately defined, in most cases the most cost-effective method can be chosen. If Program A is as effective as program B and less costly, program A is chosen. The problem arises when program A is both more costly and more effective or less costly and less effective; in these cases, some other criteria must be used to determine if the higher (lower) cost is worth the increased (decreased) effectiveness.

The next several papers discussed cases where an all-RN staff was implemented and what effect this change had on patients, staff, and cost.

Hinshaw et. al. (1981) described the effect of a change to an all-RN staff for an in-patient medical unit serving cardiac and oncology patients. They looked at the direct effect on the nursing staff, the indirect effect on patient care, and the cost. The direct and indirect effects were evaluated at three points, Phase I which was one month prior to implementing an all-RN staff, Phase II three months after the staffing change, and Phase III nine months after the change.

The direct effects of the staff changes (those not affecting patients) on the nursing staff included job satisfaction measures and the nursing staff's perception of the quality of care. Specific questions included, "Will the nursing staff be more

satisfied in their positions on the unit?, Will they perceive their colleague group as being more cohesive?" And, "Will a registered nurse staff define quality of nursing care differently, that is more professionally, than a mixed staffing group?" (p. 31 & 32). At the end of the study, the direct effects changed for the better. The criteria used by the staff to define what made up quality care became more professional in nature.

The indirect effect, i.e., the effect on patient care, showed a decline after three months especially in the areas of patient education and technical care. In Phase Two the nursing staff was highly satisfied with their positions, but the patients were dissatisfied with their care. One reason may have been that RN nurses now were required to take care of many basic care activities which previously were handled by LPNs or aides. Thus, patients for whom these activities were important were not satisfied during the transition period. In Phase Three this trend changed as all measures of patient care were as high or higher than before the change to all-RN staffing. The cost effect was analyzed by examining the staff's need for float resources and their use of overtime, compensation time, and sick time options. The amount of float pool hours used did decrease from 400 total licensed hours in Phase One to 96 in Phase Two, but increased to 296 in Phase Three. Sick time, overtime, and compensation time all decreased from Phase I to Phase III.

The results of this study revealed that the shift from mixed staffing to an all-RN staff did provide a better working

environment for the staff and equal or better patient care at a lower cost in this highly technical, specialized unit.

Forster (1978) looked at the effect on an entire hospital of a change from variable to all-RN staffing. To judge the quality of care he calculated the hours per patient day (HPPD = annual staff hours budgeted/annual patient days). The results revealed that total HPPD decreased from 10.26 to 9.14, the total HPPD included RN, LPN, and Nursing assistant hours. The total RN hours, however, increased from 3.95 to 7.02. Forster made no attempt to show that this constituted an increase or decrease in the quality of patient care.

Looking only at direct cost, Forster did show that a savings of $43,000 was realized for this hospital with 154 beds. A greater savings would have been realized if indirect benefits had been calculated, because the total number of employees decreased from 160.6 FTE to 132.0 FTE. This study showed that an all-RN staffing pattern can be cost-efficient, but also cautioned that better measurements of the quality of care would be required to assess the total effect.

Halloran (1983) illustrated a case where a predominantly RN staff operated at less cost and with greater efficiency than a similar ward with 40 percent RNs, 40 percent aides, and 20 percent LPNs. Halloran, using a nursing diagnosis process, attempted to determine the effectivness of care with different staffing levels. Data were collected on nursing diagnoses and direct care provided to patients in two medical units. From the original 37 diagnoses, data were broken down into five

hierarchies of needs strata. This study found that the units with fewer personnel, but higher percentages of RNs, had considerable improvement in the allocation of time to a patient's higher order of needs. The cost of care in the predominantly RN unit was $280 as compared with $305 for the mixed unit.

Halloran concluded that the RNs use their time more efficiently and that an all-RN staff can provide a higher level of care at a lower cost.

Shukla (1983) contended that individual, nurse-related factors have greater impact than the structural factors on the quality of care and satisfaction of nurses. Two hypotheses were studied: (1) Given that there are no significant differences in the quantity and quality of nurses in the nursing units, there will be no significant differences among primary, team, and modular nursing structures in terms of the quality of nursing care delivered. (2) Given that primary, team, and modular structures are staffed respectively by 100% RNs, by 50% RNs and 50% LPNs, and by 50% RNs, 25% LPNs, and 25% aides and the work load as defined by a patient classification system is equitable among structures, the cost per patient care will be highest on the primary unit and lowest on the team unit. This study looked at three units where the various staffing modes were implemented and controls were employed to assure that the work load and competency of the RNs(using the Slater Nursing Competency) were even.

The dependent variable was the quality of patient care as measured by the Quality of Patient Care Scale (p. 178). Raters observed the care received by patients and scored the quality of care on a five-point scale.

The results indicated that there was not a significant difference in the quality of care provided by the three models. The cost figures upheld the hypothesis that the team mode of staffing was the least expensive. This paper showed that the individual, nurse-related variables, such as competency, affect quality to a greater extent than does the structure of nursing care delivery.

Hancock (1984) collected average patient care data for a medical surgical unit. He used it to create a computer simulation of the cost of different staffing modalities for various size wards. He assumed that all personnel were experienced and LPNs were as effective as RNs in tasks for which both received the same training. After the data on patient care were collected, each task was assigned the lowest level of care provider that could perform the task (could the task be performed by an aide or does it require an LPN or RN?).

The computer simulated units with capacities of 24, 36, 48, 52, and 80 beds and percentage occupancy of 96, 92, 88, and 77. The results showed that for the smaller units, an all-RN staff was only slightly more expensive, but as the unit size is increased the cost difference increases. For a 36 bed unit, the cost per hour of nursing care was $38.51 for an all-RN staff and

$38.44 for a team unit. For an 80 bed unit the difference was $37.22 for all RN versus $34.15 for a team unit.

The conclusions Hancock reached depended on several factors. The most important was that the care provided by an aide was comparable to that of an RN. While it may be true for many tasks, such as activities of basic living, that an LPN can perform the task as well as an RN, the RN is also trained in diagnosis and the more time spent with the patient the more efficiently the RN can care for the patient. Hancock's figures were also highly dependent on the wage rate. He utilized the wage rates prevalent at the time of the study. If all health care organizations were forced to hire only RNs, the demand for RNs would increase, thus increasing the wage rates and increasing the cost difference between an all-RN staff and a team mode.

The cost-benefit analysis does not provide conclusive proof as to the cost effectiveness of an all-RN staff. However, they do provide an idea of the complexity of the problem and the areas that must be considered when implementing a staffing change.

As previously stated, the KNA resolution (if passed into law) would have an effect on the labor supply and demand for nurses. Since the shortage of nurses has been widely reported, the question becomes, "Will there be enough associate degree and bachelor degree nurses to meet the demand if the LPN is eliminated?"

Sloan and Richupan (1975) calculated a labor supply equation for nursing and found an elastic RN supply. This suggested that with an increase in wage rates the supply of nurses would increase. Link and Settle (1977) found the opposite results. They found that the supply curve was highly inelastic and possibly backward bending (an increase in the wage rate would actually decrease the number of nurses willing to work more hours or less desirable hours). The question of whether the supply of nurses could be increased by an increase in the wage rate was uncertain. Link and Settle (1985) looked at the labor supply function for LPNs and pointed out that substitution does occur between RNs and LPNs as the relative wage rate for LPNs declines. Since this substitution did seem to take place, it was important to understand the underlying factors determining the labor supply of LPNs. They found that the labor supply curve for LPNs was highly elastic; thus, an increase in the wage rates for LPNs would greatly increase the supply of LPNs. Why was this result different from their finding with RNs? They suggested two reasons for this outcome. The first was since LPNs were paid less than RNs, they could be measuring different sections along the same supply curve. At a lower wage rate, the LPN was more responsive to a wage increase of even 10 cents an hour than an RN would be. The second explanation was that the total household income for the LPNs was lower than for RNs. Studies have shown that as a spouse's income increases, the amount of service

provided by nurses decreases. If, as proposed above, the household income of the LPN were lower than the RNs, then less of this substitution would take place.

Link and Settle make an important point. The current market structure allows health care providers the option of substituting between LPNs and RNs, and a solution to a shortage of RNs is hiring LPNs. If the LPN level of nursing were to be eliminated, the market would no longer have this option. Additionally, the number of LPNs participating in the work force can be increased more quickly than the number of RNs both from the presently inactive group (due to a more highly elastic supply function); also, new LPNs can be trained more quickly (11 months training for an LPN versus nearly two years for an ADN). Based on the findings reported in the above studies, it becomes clear that the economic effects on the supply of nursing care must be considered more carefully before LPNs are eliminated.

All of the previous papers have concentrated on staffing patterns for hospitals. This was because almost all of the research conducted concerned hospitals. The next several papers, however, will look at employment of LPNs in geriatric institutions and home health agencies.

Barrett (1979) presented the argument of the usefulness of LPNs in home health care. The main point made was that the elderly population is increasing. "Predictions indicate that between 1975 and the year 2000 we can expect the age group 65-74 to increase 22.8 percent, the age group 75-84 to increase by 56.7 percent, the age group 85 and over to increase by 91.1 percent;

and the overall population 65 and over will increase to 31.8 million persons by the year 2000." (p. 14) Other demographic changes will also increase the need for home health care as well, including smaller family sizes and greater mobility while both decrease the family support group available to care for the elderly and sick. These demographic changes will obviously increase the demand for home health care, but is there a place for LPNs? Barrett pointed out several problems of hiring LPNs in home health. They include the fact that an RN must oversee the work of the LPN. Also, Medicare and Medicaid regulations are ambiguous as to the reimbursement for LPN services. According to Kentucky Home Health care agencies, LPNs cannot be hired because of Medicare and Medicaid reimbursement regulations. According to a representative of the House Select Committee on Aging, the service for LPNs are reimbursable in theory, but local variations exist. The results of the survey portion of this report, which will be discussed later, also indicated that Home Health was not a promising area for LPN employment.

An area which does offer increasing opportunities for LPN employment is long-term care facilities. Bergman (1984) surveyed nursing home workers and found that more LPNs were employed, that LPNs had longer job tenure, (6 years versus 3.7 for RNs), and that LPNs also had a higher fulfillment of job expectations. Nursing homes also afforded LPNs a chance to enter management positions. Of the 56 management positions in the survey, half were held by LPNs. Job possibilities appeared greater for LPNs in long-term care facilities.

Job opportunities do exist in nursing homes, but do LPNs provide adequate care for the geriatric patient? Eliopoulos (1983) saw the goal of an all-RN staff not only unrealistic, but detrimental to long-term care facilities. From a realistic standpoint, Eliopoulos cited several reasons why only 7.6 percent of RNs currently work in nursing homes. One reason was the lack of professional stimulation arising from lack of contact with other professional disciplines available in a hospital setting. In nursing homes, nurses are also responsible for the supervision of a large number of nonprofessional staff. Another significant deterent was salary scales. Eliopoulos concluded that "Nurses employed in geriatric care earn at least one dollar an hour less than nurses in other settings." (p. 29) Thus, the goal of recruiting more RNs for long-term care facilities did not seem to be a reasonable expectation, given today's economic environment.

No one can argue that everyone is entitled to the highest level of care possible, but does an RN provide a higher level of care in a nursing home? Insufficient knowledge can be fatal in a medical setting. "However, most of the care activities (in a geriatric setting) are routine and the patient care problems predictable. Highly technical tasks represent a small portion of the nursing activities with a nursing home patient. Time-consuming activities such as feeding, bathing, dressing, transferring, orienting, protecting, and toileting are the bulk of the direct care activities. Adequately trained and supervised nonprofessionals can perform these activities adequately and

safely." (p. 30) Will the RN be motivated in a setting which offers little in the way of challenging work, responsibility, and feelings of achievement? If the nurse does not feel motivated, will this increase the level of burnout and negatively impair a nurse's effectiveness?

From a fiscal standpoint, the cost of an all-RN staff would be prohibitive to almost all nursing homes. Considering the non-technical nature of the care provided, a substitution from LPNs to RNs would have to be almost one for one. It would take an RN the same amount of time to perform a basic task as an LPN. Eliopoulos estimated that a change to an all-RN staff would increase the cost by nine dollars per day for each patient. There are 1.3 million nursing home beds in this country. If they all switched to all-RN staffs, the increased cost would be four billion dollars a year. Given the increasing number of elderly in this country, this figure would probably increase in coming years. The nature of the work in long-term care facilities does not appear to call for all RN-trained nurses and the economics of care would be seriously impacted by a change to an all-RN staff.

If the work in nursing homes does not call for RNs, are LPNs adequately trained to do the job? Bryant (1981) pointed out several areas in which LPNs needed greater training (most of these points were also substantiated in this survey). Course work needs to be increased on the aging process itself so that the LPN can understand the physical, psychological, and emotional needs of the elderly. The LPN must have a better understanding

of the medication administered and of the possible side effects. LPNs also need work on supervisory skills and leadership training. In most nursing homes the LPN is responsible for supervision of the aides and during some shifts completely responsible for the needs of the patients. The LPN student needs to be prepared for this role. The LPN has the basic training needed for geriatric care, but emphasis needs to be put on the specific needs of the elderly and the nursing home environment.

From the literature available it would seem that the LPN serves a useful role in the health care industry, and elimination of this nursing level would be a mistake. Also, the effects of a change on the quality and cost of care are questionable. What does appear clear from the previous review is that nursing shortages would probably result, resulting in increased costs and less available care. The latter effect would impact greatest on long-term health care in nursing homes.

SURVEY OF HEALTH CARE PROVIDERS

A major activity of this research project was a survey concerning the present and future staffing needs of the health care industry in Kentucky. Surveys were sent to nursing homes, home health agencies, and hospital administrators. The mailing list was obtained from the Kentucky Department for Human Resources and contained all licensed health facilities as of September, 1985. Questionnaires were sent to all acute care facilities. Surveys were not sent to mental health hospitals, birthing centers, clinics, doctors' offices, etc. All home health agencies and nursing homes were also surveyed. It was found from the returned surveys that nursing homes that had only personal care beds could provide little information. Personal care homes are not required by law to have any professional staff, and most did not. Only those surveys from personal care homes with a professional nursing staff were included in the data set. Because of this, 27 surveys which were returned from nursing home operators were not included in the study.

Besides presenting findings for each type of health care facility, the data were analyzed by location: urban or rural. The criterion used was whether the health care facility (or the home office in the case of home health agencies) was located within a standard metropolitan statistical area (SMSA), in which case it would be considered urban. The reason for analyzing the

survey results in this way was to test the hypothesis that there are differences between rural and urban areas in the availability and desired mix of health care workers.

Survey Results

The purpose of the survey was three fold. First, to determine if there was a demand for LPNs in the market place now and in the future. Second, to determine how well the LPN was performing and what areas might need improvement, and third, what would be the results if the LPN position were eliminated?

The response rate was 203 of 290 or 70 percent for nursing homes, 73 of 97 or 74 percent for home health agencies, and 72 of 120 or 60 percent for acute care facilities.(Table 1)

Table 1

Response Rates by Type of Facility

Facility Type	Total # Rec'd/sent	%
Nursing Home	203/290	70%
Home Health	73/97	74%
Hospital	72/120	60%

Presented in Table 2 are the total number of full- and part-time employees as reported by the respondents. Even though these figures do not reflect state totals, the ratios of full to part time and rural to urban provide useful information.

Table Two provides a list of the current staff sizes broken down by full- and part-time employees and by urban and rural areas, and the ratios of full-time RNs to full-time LPNs (RNs/LPNs). For nursing homes the ratio (F:T) was approximately one RN to 2.5 LPNs (1:2.5) for urban areas and 1:3 for rural areas. For hospitals, the ratio was 5:1 for urban areas and 2:1 for rural areas. This indicated that in urban areas there were 5+ RNs for every LPN, but less than 2 RNs for each LPN in rural areas. The rural areas would thus be hardest hit if the LPN were eliminated, because a larger portion of health care is provided by LPNs in the rural areas. In the home health area, more LPNs are employed in the urban areas than the rural areas, but the proportion of LPNs is greater in the rural areas. The reason cited for fewer LPNs overall in the home health areas was that due to Medicare and Medicaid regulations, RNs must be used more extensively. The urban areas have a higher number of private pay patients for whom hiring an RN is cost prohibitive. Without the LPN, the person who needed home health care but did not qualify for Medicare and Medicaid would have their access to medical care limited.

Table 2

Current Nursing Staff Location and Type

Nursing Home		Home Health		Hospitals	
Statewide		**Statewide**		**Statewide**	
n = 203		n = 73		n = 71	
RN (F. T.)	418	RN (F. T.)	484	RN (F. T.)	5485
RN (P. T.)	235	RN (P. T.)	248	RN (P. T.)	1428
LPN (F. T.)	1185	LPN (F. T.)	78	LPN (F. T.)	1873
LPN (P. T.)	415	LPN (P. T.)	164	LPN (P. T.)	363
Ratio: RN/LPN	1:3 (F. T.) 1:2 (P. T.)	RN/LPN	6:1 (F. T.) 3:2 (P. T.)	RN/LPN	3:1 (F. T.) 4:1 (P. T.)
Urban		**Urban**		**Urban**	
n = 73		n = 29		n = 19	
RN (F. T.)	222	RN (F. T.)	219	RN (F. T.)	3017
RN (P. T.)	134	RN (P. T.)	185	RN (P. T.)	999
LPN (F. T.)	566	LPN (F. T.)	29	LPN (F. T.)	565
LPN (P. T.)	217	LPN (P. T.)	152	LPN (P. T.)	174
Ratio: RN/LPN	1:2.5(F.T.) 2:3(P.T.)	RN/LPN	7.5:1(F.T.) 1.2:1(P.T.)	RN/LPN	5:1(F.T.) 6:1(P.T.)
Rural		**Rural**		**Rural**	
n = 130		n = 44		n = 52	
RN (F. T.)	196	RN (F. T.)	265	RN (F. T.)	2468
RN (P. T.)	101	RN (P. T.)	63	RN (P. T.)	429
LPN (F. T.)	619	LPN (F. T.)	49	LPN (F. T.)	1308
LPN (P. T.)	198	LPN (P. T.)	12	LPN (P. T.)	189
Ratio: RN/LPN	1:3 (F. T.) 1:2 (P. T.)	RN/LPN	5:1 (F. T.) 5:1 (P. T.)	RN/LPN	2:1 (F. T.) 2:1 (P. T.)

Table 3

Number of Present Job Openings by Type Facility

Nursing Home		Home Health		Hospitals		Total
RN	48	RN	80	RN	588	716
LPN	125	LPN	29	LPN	42	196

Tables Three, Four, Five and Six deal with current and future hiring needs. Table Three lists the present job openings as reported by the respondents; these are positions presently waiting to be filled. The total reported was 716 RN openings and 196 LPN openings. Table Four provides data about additional RNs or LPNs who will be needed in the next two years due to expansion; this measures the creation of new positions. For RNs, the percent stating they did expect to add new positions ranged from a low of 13 percent for rural nursing homes to a high of 97 percent for urban home health care agencies. For LPNs the range varied from 15 percent for urban hospitals to 31 percent for urban home health agencies. All agencies reported a greater demand for RNs, but nursing homes reported the least demand. This was due to their much lower ratio of RNs to LPNs, particularly in the rural areas.

Table 4

Percentage Reporting That Additional RNs or LPNs Will be Needed in the Next Two Years Due to Hospital Expansion or an Increase in Services Provided

	Nursing Homes		Home Health		Hospitals	
	Statewide		Statewide		Statewide	
	yes	no	yes	no	yes	no
RN	20%	80%	87.5%	12.5%	71.8%	28.2%
LPN	27%	73%	28.8%	71.2%	23.2%	75.4%
	Urban		Urban		Urban	
	yes	no	yes	no	yes	no
RN	30%	70%	97%	3%	58%	42%
LPN	31%	69%	31%	69%	15%	85%
	Rural		Rural		Rural	
	yes	no	yes	no	yes	no
RN	13%	87%	81%	19%	77%	23%
LPN	25%	75%	27%	73%	28%	72%

Presented in Table Five are the actual number of new positions expected to be created over the next two years due to expansion. Six hundred and thirty six new RN positions and 272 new LPN positions were expected.

Table 5

Expected Additional Staff Openings Due to Expansion

Nursing Homes	Home Health	Hospitals	Total
RN 59	RN 158	RN 419	RN 636
LPN 129	LPN 46	LPN 97	LPN 272

Presented in Table Six are the number of replacement positions which were expected to be filled. These are old positions which, due to retirement, termination, or quitting will need to filled. One thousand three hundred twelve replacement RNs and 658 LPNs are expected to be needed. These jobs can be filled three ways: from newly trained nurses and LPNs, experienced personnel hired from other facilities, or from nurses and LPNs who are reentering the job market. In order to get an idea of what percentage of personnel for these replacement and new positions will come from schools, the following question was asked, "In the past two years, what percentage of new employees were hired from hospitals, nursing homes, schools, or other institutions?" Table seven contains these results.

Table 6

Expected Replacement Positions Needed Due to Staff Turnover

Nursing Homes	Home Health	Hospitals	Total
RN 199	RN 132	RN 981	RN 1312
LPN 543	LPN 21	LPN 94	LPN 658

Table 7

Proportion of New employees hired by Source

	Nursing Homes	Home Health	Hospitals
Hospitals	19.57	75.11	38.23
Nursing homes	32.33	9.31	6.13
Schools	29.47	5.49	50.91
Other	10.92	10.83	1.55

Analysis of Table 7 revealed that nursing homes hired approximately 30 percent of their employees from schools, home health 5.49 percent, and hospitals 51 percent from schools.

Taking these percentages and applying them to the number of new hires and replacements indicate that 964 RN and 302 LPN graduates will be needed. This methodology is only meant to give some idea how many LPN graduates may be absorbed by the market place each year. Currently, there are approximately 450 senior level LPN students. In 1984, seventy percent completed the program; of that number 95 percent passed the exam on the first try. From this it can be assumed that about 300 students will be available for employment in the next year. The current LPN program seems to be preparing a number of LPNs which will meet the needs of the marketplace. However, one must remember that there was not a 100% response rate to this survey, nor were all employees surveyed. Therefore, a situation could be expected next year which would be comparable to this year's job opening report of 196 LPNs (Table 2).

Table 8

Availability of Qualified Applicants

	Nursing Homes		Home Health		Hospitals	
	yes	no	yes	no	yes	no
RN	39%	61%	63.4%	36.6%	31.4%	68.6%
LPN	40%	60%	72.7%	27.3%	90.9%	9.1%

Table Eight contains the respondents' opinions as to whether or not they have had an adequate number of qualified applicants. About 40 percent of nursing homes felt they had enough qualified applicants, both LPN and RN; in home health, 63 percent felt they had enough qualified RNs and 73 percent enough qualified LPNs; for hospitals, 31 percent felt they had enough qualified RNs and 91 percent said the LPN applicants were adequate. Since demand is less in home health and hospitals and salary levels higher, it would seem reasonable that they would see a higher number of qualified applicants. In that the majority of nursing homes are located in rural areas or small towns, Table Eight emphasizes that the rural nursing home faces the greatest shortage of qualified LPN graduates. Additionally, both hospitals and nursing homes are apparently facing serious problems in hiring sufficient numbers of RNs.

One final point needs to be made regarding the future hiring tables. The number of replacement positions, new hires, and job openings for LPNs are all higher in the nursing home area than in the other two areas. The job prospects for LPNs are considerably better in nursing homes. This could indicate a program emphasis. If the program wants to meet the needs of the marketplace, it may need to emphasize the area of geriatrics to a greater extent.

Table 9

Desired or Optimum Staffing Mix Between RNs and LPNs

Nursing Homes		Home Health		Hospitals	
Statewide		Statewide		Statewide	
RN	27%	RN	91.47%	RN	75%
LPN	73%	LPN	8.51%	LPN	25%
Urban		Urban		Urban	
RN	32%	RN	90.51%	RN	85%
LPN	68%	LPN	9.48%	LPN	15%
Rural		Rural		Rural	
RN	25%	RN	92.12%	RN	74%
LPN	75%	LPN	7.86%	LPN	26%

Table Nine deals with the desired or optimum staffing mix between RNs and LPNs. In nursing homes the average desired mix was 27 percent RNs and 73 percent LPNs (1.3); for home health it was nearly 92 percent RNs and 8 percent LPNs (9.1); and in hospitals it was 75 percent RNs and 25 percent LPNs (3.1). The demand for a higher percentage of RNs was greater in the urban areas than in the rural areas. It was surprising that this was about the same staffing mix that currently exists, 75 percent of the nurses employed in hospitals were RNs, 86 percent of nurses in home health were RNs and 26 percent of nursing home nurses

were RNs. This may be an example of how a market will tend to naturally reach an equilibrium. Would any legislation that would change the market structure tend to cause inefficiency?

Of those respondents whose desired staffing mix was different from the actual, the most common reasons given were lack of available personnel to hire and cost. If one can assume that lack of available personnel means a lack of RNs, then again one can see that the LPN position is filling an existing need. Cost did not appear to be a factor in home health and hospitals. However, 18 percent of the nursing home respondents indicated that costs kept them from reaching the desired mix. Hospitals, which hire and desire about a 3 to 1 mix of RNs, reported that lack of available personnel (RNs) kept them from their staffing goals.

Table 10

Reasons Cited for Not Achieving the Desired Staffing Mix

	Nursing Home		Home Health		Hospitals	
Lack*	(A)	15%	(A)	5.6%	(A)	40.3%
Cost	(B)	18%	(B)	4.2%	(B)	4.2%
Other	(C)	39%	(C)	19.7%	(C)	22.2%
A & B		9%	A & B	5.6%	A & B	11.11%
A, B & C		3%	A, B & C	1.4%	A, B & C	2.8%

*Lack of available personnel to hire.

Respondents were asked whether the RNs and LPNs hired over the past two years had been adequately trained for the duties they were expected to perform.

Table Eleven contains the information on the level of training of the nursing staff. LPNs do seem to be adequately trained, with responses varying from 74 percent to 96 percent yes. The lowest percentage of yes responses was from the nursing home industry, indicating the need for greater training geared toward that industry.

Hospitals, particularly urban hospitals reported the greatest difficulty in obtaining qualified RNs, with 43 and 53 percent respectively reporting "no" to that question. These same hospitals reported that nearly all of their new LPNs were adequately trained.

Table 11

Percent Reporting that New Hires were Adequately Trained

Nursing Homes			Home Health			Hospitals		
	Statewide			Statewide			Statewide	
	yes	no		yes	no		yes	no
RN	79%	21%	RN	75%	25%	RN	57%	43%
LPN	74%	26%	LPN	84%	16%	LPN	96%	4%
	Urban			Urban			Urban	
	yes	no		yes	no		yes	no
RN	77%	23%	RN	78%	22%	RN	47%	53%
LPN	71%	29%	LPN	91%	9%	LPN	100%	0%
	Rural			Rural			Rural	
	yes	no		yes	no		yes	no
RN	80%	20%	RN	72%	28%	RN	61%	39%
LPN	76%	24%	LPN	78%	22%	LPN	95%	5%

Table 12 provides data on the average tenure of nursing staffs. In all cases LPNs have higher average tenure. A longer tenure means that fewer new employees need to be hired. This in turn lowers staffing costs. However, the averages did not vary to a great degree.

Table 12

Job Tenure of Nursing Staff

Nursing Homes	Home Health	Hospitals
Statewide	Statewide	Statewide
RN 3.9 yrs.	RN 4.6 yrs.	RN 6.0 yrs.
LPN 4.1 yrs.	LPN 5.9 yrs.	LPN 7.7 yrs.
Urban	Urban	Urban
RN 3.8 yrs.	RN 4.2 yrs.	RN 5.7 yrs.
LPN 3.9 yrs.	LPN 6.8 yrs.	LPN 8.8 yrs.
Rural	Rural	Rural
RN 3.9 yrs.	RN 4.8 yrs.	RN 6.2 yrs.
LPN 4.3 yrs.	LPN 5.2 yrs.	LPN 7.4 yrs.

As shown in Table 13, the opinions varied as to the effect of eliminating LPNs on health care cost. The greatest effect would be in the nursing home area which hires the largest percentage of LPNs, with a total of 96.6 percent of the respondents reporting that costs would increase. Sixty-six percent of the hospitals also felt health care cost would increase. When broken down between urban and rural areas however, the hospital figure drops to 53.3 percent in urban areas and rises to 70.1 percent in the rural areas. Many urban

Table 13

Perceptions of How an All-RN Staff would Affect Total Nursing Budget

	Nursing Homes	Home Health	Hospitals
	Statewide	Statewide	Statewide
Stay the same	2.7%	58.8%	27.7%
Increase	96.6%	41.2%	66.2%
Decrease	.5%	0.0%	6.1%
	Urban	Urban	Urban
Stay the same	4.7%	50.0%	46.7%
Increase	95.3%	50.0%	53.3%
Decrease	0.0%	0.0%	0.0%
	Rural	Rural	Rural
Stay the same	1.7%	65.0%	21.2%
Increase	97.4%	32.5%	70.1%
Decrease	.9%	2.5%	8.5%

hospitals have already increased their RN staffing, but because of personnel or cost factors this may not be an available option for rural hospitals.

Table 14

Of those who responded that a shift to all RN staffing would change the cost of health care, the average change predicted was:

	Nursing Homes		Home Health		Hospitals	
increase	(n = 157)	48%	(n = 38)	24.6%	(n = 28)	21.0%
decrease	(n = 1)	40%	(n = 4)	16.0%	(n = 0)	0.0%

In summary, the LPN programs appear to be graduating an appropriate number of students who meet the current needs of the market place. The largest need for LPNs is in the nursing home industry and in rural areas of the state.

Respondent Comments

The comments were very consistent in that most respondents had similar opinions. In the hospital area, the comments stressed that acute care facilities were quickly going to all-RN staffing. The reasons include that as the percentage of "high tech" nursing increase, the duties that LPNs are qualified to perform are decreasing. Because LPNs are supervised by RNs the

actual cost of employing LPNs increases. The comments seem to indicate that the demand for LPNs in the acute care setting is diminishing and this trend will continue.

The comments from the home health industry contained the most variety. The majority stated they did not hire LPNs because of the nature of the work and the need for LPNs to be supervised by an RN. There were several cases, though, that strongly supported the need for LPNs and said they were very useful to their organization. The difference seems to be that the home health organizations which utilize LPNs are located in urban regions and have more private, pay patients. Overall, the demand for LPNs in home health is limited.

The nursing home area provided the most support for the LPN program and most concrete suggestions for its improvement. Almost without exception, nursing home operators felt they could not continue to operate without LPNs. The suggestions they made include more training on supervisory and leadership skills. The LPN is required to supervise aides and other nonprofessional staff; therefore, the nursing home operators felt training needed to be added to prepare the LPN to fill this role. The second recommendation concerns the need for increased documentation and charting skills. The program also needs to include training in intravenous (IV) therapy, insertion, and care of nasogastric tubes and gastrostomy tubes. Under an opinion of the Kentucky Board of Nursing (AOS76-12), LPNs are permitted, after completing a Board approved continuing education course, to perform more extensive IV therapy. Another opinion, (AOS76-5) is that it is

within the scope of the LPN practice to "insert a gastric tube into the stomach of a patient who has normal anatomy and physiology of the respiratory and gastrointestinal tract when the gastric tube is placed into the stomach for such purposes as gavage, lavage for toxic substances, collection of gastric samples, or administration of medications." As there are duties which the board considers safe for LPNs to perform, the nursing home industry has expressed a need for LPNs trained in these areas. Including these skills into the LPN program should be considered. One note should be made concerning the Kentucky Board of Nursing opinions. "An advisory opinion is not a regulation of the Board and does not have the force and effect of law. It is issued as a guide post to licensees who wish to engage in safe nursing practice and who wish to avoid the possibility of being subjected to malpractice litigation." (Found at the end of each KBN opinion statement)

SURVEY OF CURRENT SENIOR LEVEL LPN STUDENTS

A survey was also conducted of senior level LPN students in Kentucky's 15 LPN programs. Thirteen of the fifteen schools returned the surveys. The total number of students replying was 230.

This survey was conducted to ascertain the socio-economic groups being served by the LPN program, as well as to collect other demographic data on that population. One purpose of vocational education is to increase the job opportunities for program participants. The survey was designed to find out who is being served and if their job opportunities would be diminished if the LPN program were eliminated.

Table 15

Participation in Assistance Programs

a)	Those currently receiving any form of government assistance	
	yes	47.6%
	no	52.4%
b)	Type of assistance received	
	Government welfare (AFDC, Food stamps)	30.3%
	Pell Grant	15.6%
	Other (Social Security, VA, etc.)	49.5%
	No response	4.0%

One of the tentative conclusions of the Phase One report was that a disadvantaged group was being served by the LPN program. The results of this survey confirmed that conclusion. Forty-seven point six percent of the respondents receive some form of government aid. Table 15 shows the breakdown of categories of aid. Of those who receive aid, 30.3 percent receive aid to families with dependent children (AFDC) and/or food stamps.

Table 16 provides a breakdown of demographic data. As would be expected, most (93.9%) of the students are female. The average age was 31.2 years, and students were split almost evenly between married (55.4%) and single or divorced (44.6%), with an average 2.3 dependents. The average income was $14,973, but the

Table 16

Student Data

a)	Sex: Male, 6.1% Female, 93.9%
b)	Average Age: 31.2 years
c)	Marital Status: Single, 26.9% Married, 55.4% Divorced, 18.1%
d)	Percentage of students with dependents: 83%
e)	Average number of dependents: 2.3
f)	If single or divorced, average number of dependents: 1.71
g)	Average family income: $14,973
h)	Percent with income less than or equal to $10,000: 44.8%
i)	Average income of single parents: $6,298
j)	Percentage single parents: 34%

percentage of students with incomes less than $10,000 was 44.8 percent. Thirty four percent of students were single parents and the average income for this group was $6,298. A large portion of the LPN student population comes from a low income, disadvantaged group.

Table 17

Access to BSN and ADN Programs

Average distance to BSN program	43.3 miles
Average distance to ADN program	26.0 miles
Percent who live 30 miles or more from an ADN program	36.7%
Percent who live 30 miles or more from a BSN program	60.2%

The cost of an associate degree program at a public University in Kentucky is $1920 per year, would you be able to afford this, (this includes only the cost of tuition, books, and fees)

yes	24.4%
no	72.6%

Would closing the LPN program limit the job opportunities to the students? If one assumed that the options open to the LPN student, if they wish to work in the health care field, were LPN, ADN or BSN programs, could the current LPN student attend an ADN or BSN program? Table 17 contains the average distance to ADN

and BSN programs and the response to the question, "The cost of an associate degree program at a public university in Kentucky is $1920 per year, would you be able to afford this?" Seventy-two and six tenths percent (72.6%) said they could not afford the cost of an associate degree. The average distance to travel to get to an ADN program was 26 miles and 43 miles for a BSN program. Since the LPN student population is older (31 years) than the average college student and the majority have dependents (83%), it does not seem reasonable that they have the option of moving to an area which has an associate or bachelor degree program. Daily commuting is also questionable, and a large majority see it as financially out of the question.

Table 18

Anticipated Employment of LPN Graduates

Do you intend to seek employment as an LPN after graduation?

yes 96%

no 4%

If yes, in what type of institution?

	yes	no
Nursing Home	31%	69%
Hospital	75%	25%
Home health Agency	26%	74%
Other	24%	76%

From the student data collected, the LPN program appeared to be serving a disadvantaged population, and the job opportunities to this population would be decreased if the LPN programs were to be discontinued.

As indicated in Table 18, almost all LPN students (96%) intend to seek employment as LPNs. Significantly, 69 percent do not intend to pursue work in nursing homes, and 75 percent wish to work in hospitals. There is no way to know if this is where the students "wish" to work or "expect" to work. If this is where the students expect to work, then the survey results of health care administrators indicate that the LPN students are not properly informed as far as job prospects. In that these data were not available prior to this study, this is no doubt the case. The students should be informed before entering the program as to the job prospects after graduation.

Table 19 contains the percentage of students who had received job offers at the time of the survey. Twenty-three percent had received job offers. This survey was administered several weeks before the end of the school year.

Table 19

Job Offers Received

yes	23%
no	77%

Analysis of the survey of the LPN students revealed that the program is helping a disadvantaged population. It also indicated that better information is needed regarding job prospects, and that elimination of the program would seriously impact the students' opportunities for training and employment.

COMPARISON OF THE PHASE ONE AND PHASE TWO REPORTS

One of the purposes of this report was to confirm or disprove the tentative conclusions of the Phase One report. In summary, these conclusions will be looked at individually in light of the findings from the Phase Two report.

1. While it is, of course, desirable to increase the level of preparation for both professional and technical nurses, there remains a need in the health care industry to retain the position of the Licensed Practical Nurse.

The results of Phase Two confirm this conclusion. There does remain a need in the health care industry for the LPN, but this need is diminishing in some areas of nursing as the technology of health care increases.

2. Existing manpower data support the conclusion that additional LPNs will be needed in the future years. This conclusion was confirmed, but again the need is diminishing in all areas with the exception of long-term care facilities.

3. LPNs trained in Kentucky's existing programs appear to be adequately performing those nursing services which they are authorized by law to perform.

This conclusion was confirmed. Several areas of training need to be included or improved, but overall the LPNs were considered adequately trained by health care providers.

4. There is consensus that health care costs would increase if the LPN nursing level were eliminated. An objective of the health care industry is cost containment.

This finding was confirmed; the effect will be in proportion to the extent that LPNs are utilized in various areas. Nursing homes and rural hospitals will be faced with the largest increase.

5. Rural areas might well suffer nursing shortages if the LPN nursing level were eliminated.

This conclusion was confirmed. The ratio of RNs to LPNs is lower in rural areas. A larger portion of health care is provided by LPNs in rural areas than in urban areas.

6. It appears that nursing homes and extended care facilities would be affected most if the LPN level was eliminated.

This conclusion was confirmed. From the survey results, it would not be too strong to say, that elimination of LPNs would cause a major crisis in the nursing home industry. Many respondents reported that they would not be able to remain open if they were forced to hire only RNs.

7. The LPN program is more clinically intense than the ADN programs. In 11 months, the LPN probably receives more clinical training than does the ADN in the two-year program.

No data were collected that could either confirm or deny this conclusion.

8. Partly due to the increasing costs of health care, there appears to be a trend toward more home health care, resulting in implications for both the LPN and RN.

This conclusion was disproved. While the demand for home health care is increasing, there is little demand for LPNs in the home health care industry.

9. Our elderly are living longer, thus increasing the need for more long-term care facilities.

--Will RNs be attracted to the routinized care of the chronic client?

--Can nursing homes and extended care facilities afford the added cost of an all-RN staff?

This conclusion was confirmed. The consensus in the literature is that RNs would not be challenged by the work required in a nursing home setting. The results of the survey indicate that the nursing homes could not afford to hire a greater number of RNs than are currently being hired.

10. A high percentage of program graduates are placed in industry.

This was shown by the placement rates in the Phase One report to be true in the past. Of the current senior level LPN students, 23 percent have found work prior to graduation, indicating a high placement rate will again occur.

11. A high percentage of program completers pass the LPN licensure examination.

This conclusion was confirmed in the Phase One data analysis.

12. There are a variety of nursing duties to be covered, some less desirable than others. Would the RN be prepared to accept the responsibility for doing the labor-intense tasks now assigned to the LPN?

The results of this conclusion are inconclusive. A review of the literature indicated that in a nursing home setting, the RN would not be willing to accept these tasks. In the acute care setting, the case studies indicate that though the RN may not be familiar with performing the basic tasks, a benefit is achieved from the added time that the nurse spends with the patient.

13. The final conclusion was that the LPN program is serving a disadvantaged student population, and that the program benefits both the student and the health care industry.

This conclusion is confirmed by the student survey data. A large proportion of the student body is on government assistance. The LPN program is allowing these people the opportunity at a relatively low cost to gain job skills, to gain employment, and pay taxes.

Overall, the conclusions of the Phase One report were correct. The results of this research indicate that the LPN program is adequately training students and the demand for LPNs continues to be strong. However, there is a trend to utilize fewer LPNs in urban hospitals and in more specialized, acute care

facilities. Increased training is needed to make the student more employable, especially to the nursing home industry. As the technology in an industry changes, so must the training programs of its workers. The health care industry has undergone many changes in the last several years, the LPN training program must change to meet the needs of the industry.

RECOMMENDATIONS AND CONCLUSIONS

The current LPN program appears to be doing an adequate job in training its students. There are areas which need improvement to better prepare the students to meet the needs of the market place. The recommendations which can be made on the basis of this report include:

1. Inclusion of Intravenous Therapy and naso-gastric tube insertion into the standard program. These are skills which many nursing home operators consider essential and conduct the training themselves. The program should strive to have graduates which require little if any further training by their employer.

2. Leadership and supervisory training should be considered for inclusion in the program. Many LPNs are expected to supervise the nonprofessional staff in nursing homes and rural hospitals. From the comments of nursing home operators, this need seems to be nearly universal.

3. Training in geriatrics should be increased. The elderly have specific psychological and physiological needs: the LPN needs to be exposed more to these needs to better be able to care for the elderly patient.

4. The LPN program should attempt to have more of the student's credit hours acceptable to associate and bachelor degree programs. The LPN program provides students with the skills needed to gain entry-level employment into the health field. The program should be set up so that if a graduate wishes to advance his/her job skills, this can be done as easily as possible. Currently, eight credit hours are transferable to associate degree programs within the Community College system; an attempt should be made to increase this number.

5. The prospective LPN students need better orientation into the job prospects after graduation. The jobs in hospitals are decreasing, but increasing in nursing homes. The pay scale and work has traditionally made working in a nursing home less desirable than in a hospital. The prospective student should be aware of the job prospects when entering the program.

In conclusion, from the literature reviewed and the results of the survey of health care providers, the scope of the LPN's practice is changing. This is not to say that the position of LPNs should be eliminated; the LPN plays an important role in the health care of the elderly as well as others. The number of elderly is growing, possibly making the need for LPNs even greater. Eliminating the LPN under the premise that the quality of health care would be increased would be questionable. The KNA

resolution, if passed into law, could limit the availability of health care to the elderly, and residents of rural areas. In the opinion of the respondents and as indicated by the literature review, it would raise the cost of health care at a time when society is attempting to contain the rise in health care costs. Additionally, many of the students who participate in the LPN program would not have the financial means to attend college. The LPN program allows these people an opportunity to gain job skills and become tax paying members of society.

Should or should not the position of LPN be continued as a licensed health care provider? There are many settings where LPNs are not the most effective providers of care; in these situations the health care provider has the option of hiring an RN. However, there appears to be a continuing need for the LPN and a desire for a mix of RNs and LPNs by the majority of health care providers. It would appear that the elimination of the LPN would limit the options of both health care providers and patients.

APPENDIX A

Survey Instruments

STATUS AND NEED
FOR
HEALTH CARE WORKERS IN KENTUCKY: 1986

A SURVEY

Dear Health Care Administrator:

We have been commissioned by the Kentucky Department of Education, Office of Vocational Education, to conduct a study of the current and future needs for licensed practical nurses (LPN's) as perceived by hospitals, nursing homes, and home health care industries. To accomplish this, we need your help. Specifically, we need data on your present and projected staffing patterns for RN's and LPN's.

The Office of Vocational Education currently operates 15 programs across the Commonwealth which prepare LPN's. This amounts to a very large expenditure of funds for salaries, facilities, and equipment, etc.

We feel that you, as the employer, are in the best position to provide data which would either support the need for LPN's in the health care industry or data which would indicate that these programs should be terminated. If the programs are not necessary to meet today's personnel needs for health care, the funds could certainly be utilized elsewhere in training programs.

Would you please complete the attached questionnaire and return it by April 15, 1986 in the enclosed self-addressed, stamped envelope.

We thank you in advance for your cooperation and assistance in this most important survey. If you have questions, feel free to call (606-257-5691).

Sincerely,

Clayton P. Omvig, Chairman
Vocational Education Department
University of Kentucky

(Name of Nursing Home) _____ (Location) _____ (County) _____

1. Position of person completing this survey: _____

2. Nursing home size - number of:
   Skilled nursing beds: ____
   Intermediate care beds: ____
   Personal care beds: ____

3. Size of present nursing staff - include contractual personnel:

   No. of RN's: (full time): _____ (part time): _____
   No. of LPN's: (full time): _____ (part time): _____

4. Present job openings: No. of RN's needed: _____
   No. of LPN's needed: _____

5. Future staffing needs:

   a. Do you expect to need additional RN's or LPN's in the next two years due to expansion?

      No: ___ Yes: ___ Estimated no. of new RN positions: _____
      No: ___ Yes: ___ Estimated no. of new LPN positions: _____

   b. Due to normal turnover in personnel for the past two years, approximately how many replacement RN's and LPN's do you expect to need over the next two years?

      Annual Turnover rate: _____%; Est. no. of replacement RN's: _____
      Annual Turnover rate: _____%; Est. no of replacement LPN's: _____

6. History of filling past vacancies:

   a. Have you had sufficient numbers of qualified applicants?

      RN's No: ____ Yes: ____
      LPN's No: ____ Yes: ____

b. If yes to 6a, is there an overabundance of RN's or LPN's available to you?

RN's No: ____ Yes: _____
LPN's No: ____ Yes: _____

c. In the past two years what portion of your new employees have come from:

Hospitals: _____% Nursing Homes: _____%
Schools: _____% Other Institutions: _____%

7. What is your desired or optimum staffing mix between RN's and LPN's?

RN's: _____ % LPN's: _____%

8. If your present mix is different from above, why? *(check all that apply)*

_____ Lack of available personnel to hire
_____ Cost
_____ Other reasons: Please specify: _____

9. Quality of applicants:

a. Have the RN's you hired over the past two years been adequately trained for the duties you expect them to perform?

Yes: _____ No: _____

Areas of strength: _____

Areas of deficiency: _____

b. Have the LPN's you hired over the past two years been adequately trained for the duties you expect them to perform?

Yes: _____ No: _____

Areas of strength: _____

Areas of deficiency: _____

9. c. On average what is the job tenure of your nursing staff?

RN's: _____ (years average employment)
LPN's: _____ (years average employment)

10. Opinions vary on the actual cost of employing an all RN staff. What is your perception of how an all RN staff would affect your total nursing budget?

Stay the same: ____ Increase by: _____% Decrease by: _____ %

11. Availability of training programs:

_____ miles, _____ driving time to the nearest LPN site
_____ miles, _____ driving time to the nearest Assoc. Degree site
_____ miles, _____ driving time to the nearest Bachelors Degree site

Any comments you care to provide concerning LPN training programs, future trends in personnel needs, etc., would be appreciated.

Please mail this questionnaire to:

Dr. Clayton P. Omvig
University of Kentucky
Department of Vocational Education
43 Dickey Hall
Lexington Kentucky 40506-0017

Survey of current LPN Students

Dear LPN Student

The University of Kentucky is conducting a research project to determine the effectiveness of the current LPN program. We would appreciate your completing this survey. Please be assured that all answers are confidential. Thank you for your help.

1) School _____

2) Age _____ Sex: Male____ Female_____

3) Marital Status: Single_____ Married_____
Divorced_____

Number of Dependents_____

4) Do you live with your parents: Yes_____ ; No_____

5) What is the total annual household income_____

6) Are you currently receiving any form of government assistance
Yes_____ No_____

If YES what type _____

7) What is the distance you would have to travel to reach the nearest Associate degree nursing program _____

Bachelor degree nursing program _____

8) The cost of an associate degree program at a public university in Kentucky is $1920 per year, would you be able to afford this, (this includes only the cost of tuition books and fees)
Yes_____ No_____

9) Do you intend to seek employment as an LPN after graduation
Yes_____ No_____

If Yes, in what type of institution do you expect to work:

Nursing Home_____
Hospital_____
Home Health Agency_____
Other(Please Specify)_____

10) Have you been offered employment yet:

Yes_____ , No_____

If yes in what type of institution _____

APPENDIX B

Support Letters

KENTUCKY
HOME
HEALTH
ASSOCIATION

March 16, 1986

Dear Home Health Agency,

The Department of Vocational Education of the University of Kentucky has undertaken the enclosed survey regarding the future need for Licensed Practical Nurses (LPNs) at the request of the State Department of Education.

Because of the importance of this issue for planning future educational programs, please take a few moments to complete the enclosed questionnaire and return it to Dr. Omvig.

If you have questions, please feel free to call Dr. Omvig at (606)257-5997.

Thank you for your participation.

Sincerely,

Nileen Verbeten,
Executive Director

1804 Darien Drive Lexington, Kentucky 40504 606/277-7983

Better Hospitals for Better Health

Kentucky Hospital Association

1302 CLEAR SPRING TRACE • LOUISVILLE, KY 40223 • 502 426-6220

William S. Conn, Jr.
President

March 26, 1986

MEMO TO: Kentucky Hospital Chief Executive Officers

FROM: William S. Conn, Jr.

SUBJECT: Nursing Manpower Status and Need Survey

On behalf of the Association, I am pleased to endorse the enclosed survey that is being conducted by the Department of Vocational Education of the University of Kentucky.

The UK Department of Vocational Education has been commissioned by the Kentucky Department of Education, Office of Vocational Education, to conduct the survey which will assist in determining the future need for licensed nursing personnel in Kentucky. We would like to urge your cooperation and assistance by coordinating the completion of this survey.

The results of this survey could be very beneficial as we look at such issues as entry into practice and the availability of nursing manpower to serve our patients. Again, your cooperation and assistance by participating in this survey could be very beneficial.

WSC/clw

Enclosure

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KAHCF
P O BOX 608 FRANKFORT, KY 40602
TELEPHONE (502) 875-1500

March 31, 1986

Dear Nursing Home Administrator:

Please find enclosed an LPN questionnaire which is part of a study being conducted by the University of Kentucky for the Kentucky Department of Education. KAHCF encourages you to complete the questionnaire and return it to the University of Kentucky as soon as possible.

This study will assist our nursing home industry in determining the future need and demand for LPN's. KAHCF will work coordinately with the University of Kentucky to see that you receive a summarization of their findings.

Sincerely,

Jack Wells

Jack Wells, President
Kentucky Association of Health Care Facilities

Enclosures

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Appendix C

Phase I Report

LPN Analysis in the Health Industry

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PHASE ONE REPORT

LPN Analysis in the Health Industry

Project Number: T1800
Budget Unit: 4817
Function Code: M3X

Project Director:
Clayton P. Omvig

November, 1985
Revised January 1986
Department of Vocational Education
University of Kentucky

INTRODUCTION/ABSTRACT

Licensed Practical Nurses (LPN's) have, for a good many years, been one of the vital links in providing health care services to the sick and elderly populations in Kentucky and across the nation. However, there has recently been a push by the American Nurses Association (ANA) to have states adopt legislation which would, in effect, eliminate LPN's as a licensed health care provider.

Presently, there are three levels of licensed nurses and four preparation programs:

1. BSN preparation (baccalaureate degree)
2. ADN preparation (associate degree)
3. Hospital based preparation (diploma)
4. LPN preparation (eleven month program)

Each program requires testing prior to licensure. BS,A.D., and Diploma nurses each take the exam for the Registered nurse and LPN's take a separate LPN exam. The ANA proposal would establish two rather than four nursing levels: the professional nurse, to be educated in BSN programs, and the technical nurse prepared in ADN programs. Such a change, if approved, would have effects on the health care industry and upon vocational education as the primary preparers of LPN's.

The function of Kentucky's program of Vocational Education is to provide Kentuckians with occupational skills that are current with the demands of the various agencies and industries which hire program graduates. Over the years, Health Occupations programs have grown and flourished as an integral part of the vocational offerings across the Commonwealth. A major program in the health area has been the LPN

program. Currently, Kentucky has 15 programs administered through the Office of Vocational Education. Two additional private programs exist in the state, Spencerian College in Louisville and William Booth Memorial Hospital in Florence.

As the technology and demands of the work place change, so must Kentucky's vocational preparation programs, e.g., new technology must be incorporated as appropriate and programs must be added or dropped as the demand for workers changes.

Therein lies the overall purpose of this research project. "Should the Office of Vocational Education continue to support the operation of LPN programs, or would the resources required to do so be better spent in another occupational area?" If the proposed ANA legislation is passed, the above questions would become a mute point--no more LPN's, no more programs.

However, several questions need to be addressed before Office of Vocational Education personnel are in a position to recommend program changes. Among the more basic questions are:

1. Do the health care providers see a need to continue LPN programs?
2. Is there a demand for workers trained at this level? Are the graduates being placed?
3. Are the present programs considered successful in meeting that segment of the manpower needs of the health care industry?
4. Do the health care providers desire their LPN's to have the extra training (including academic courses) required for the associate degree and, are they willing to bear any additional personnel costs which might result?

5. Are there any trends in health care which would indicate a need for or against the continuation of LPN programs?
6. Is vocational education providing a needed service to that segment of our population who enroll in LPN programs?

These are but a few of the questions which must be given consideration before a position can be taken on the proposed restructuring of nursing preparation programs.

Objectives

This project has two objectives. These are as follows:

1. To analyze current and existing data about the LPN occupation in Kentucky. (PHASE ONE)
2. To gather data and produce a report that summarizes the findings of the data analysis and provides recommendations about how vocational education can be responsive to future needs for trained persons in this occupation. (PHASE TWO)

The following section of this report contains a summary of findings related to PHASE ONE of the project.

FINDINGS

The questions posed in the preceeding section of the report center around the notion, "Does there appear to be a need to continue LPN programs?" This is difficult to ascertain when the question is considered in the context of "who can argue with the notion that more education would produce a better LPN?" However, is the added education considered to be necessary?

The activities associated with PHASE ONE of this project included

an analysis and synthesis of current and existing data bases provided by the project sponsor, the Office of Vocational Education (OVE). The data reviewed were many and varied. Included among those things reviewed were:

1. Numerous pieces of correspondence.
2. Various position statements and resolutions (ANA, KNA, Vocational Education, Kentucky State Association of Licensed Practical Nurses, etc.)
3. Articles and newsletters.
4. Office of Vocational Education termination and placement data.
5. LPN licensure and examination data.
6. Nursing Delineation Study.
7. Kentucky Occupational Profiles Report (Hospitals)
8. The Kentucky Health Profiles Reports, March, 1983.
9. 1985 Supply/Demand Analysis Report from the Kentucky Occupational Information System.
10. Department of Labor Occupational Outlook Data.
11. Results of interview data gathered from a group of directors of extended care facilities.

The findings have been grouped into three sections and provide data on employment outlook, completion and placement data, and the results of an informal survey conducted with directors of nursing at extended care facilities.

Employment Outlook

Data on the employment outlook for LPN's were gathered from several

source documents provided by the Office of Vocational Education.

Based on an analysis of the data reviewed, the employment outlook for LPN's remains good and, in fact, may see increases in demand into the 1990's. Two factors which appear to be influencing this demand are an aging population and increased health care costs.

"The graying of America" is a term used to describe the increasing percentage of the U.S. population living past the age of 65, and men and women over age 85 constitute the fastest-growing age group in the U.S. It is further projected that by the year 2000, there will be three times as many Americans living beyond age 100 as there are at present. (The Wall Street Journal, 1984) It is safe to assume that as people live longer, the amount of care required in nursing homes and extended care facilities will increase.

As the population ages, health care expenditures are expected to reach 1 trillion dollars annually, so employment in most health-related fields will rise faster than ever. (U.S. News and World Report, 1984)

It is further anticipated that costs of health care and changes in Medicare payments will also have an impact on health care delivery. People will have shorter stays in hospitals and increased usage of home care, nursing homes, and extended care facilities. These changes will influence the demand for the LPN, as skilled workers will be needed in these expanded settings to assist other professional health care workers. (Source: Article, "Diagnosis-Related Groups Bring Changes" by Marjorie Humphrey)

According to U. S. Labor Department estimates, Licensed Practical Nurses can expect better-than-average job prospects. An estimated

814,000 LPN's will be employed in 1995. This represents a 37 percent increase over 1982 statistics. (Occupational Outlook Handbook, 198)

The above discussion reflects national outlook. The following table contains information generated by the Kentucky Occupational Information System and printed in its 1985 Supply/Demand Analysis Report.

Table 1. Employment and Demand Data for Licensed Practical Nurses 1978-1985

Occupational Title	Employment and Demand Data				
	Employment		Estimated Demand (1978-1985)		
	1978	1985	Growth Yearly	Replacements Yearly	Annual Openings
Licensed Practical Nurse	5,626	7,409	255	343	598

As can be seen in Table 1, in the seven year period from 1978 to 1985 the number of LPN's in Kentucky increased by 1,783. These were new positions, not new hires. New hires would include both growth in new positions and the replacement of those who leave the profession. Combining growth and replacement, it is anticipated that approximately 600 new hires will need to occur each year. In that all people who complete the program don't pass the licensure exams, some aren't mobile to go to where the jobs are, and some might choose not to enter the profession, some number greater than 600 would need to be trained annually.

Other Kentucky specific demand data can be found in a September, 1985 publication of a document called the "Study of Job Wanted Classified

Ads." This is a new method for assessing the needs of Kentucky employers by compiling classified advertisements during a six week period in 10 newspapers from across the state. These survey results were not intended to be used as a sole indicator of program needs, but can be used in conjunction with other manpower data to provide added insight. Population and location were factors taken into account when selecting which papers to use in order to have a good representation of the state needs. Additionally, the figures would be low in relation to the total number of jobs available, since industries use a variety of other methods for hiring new employees and some advertisements were for multiple vacancies.

Presented in Table 2 are the findings related to employment opportunities for LPN's. Three job categories appeared to have relevance, domestic nurse, LPN, and geriatric domestic nurse. A total of 318 advertisements were located. Besides the need for LPN's in institutional settings there appears to be a growing need for domestic nurses to care for the increasing number of senior citizens who, for various reasons, prefer medical attention in their homes instead of health facilities.

Based on the six week compilation from 10 newspapers, it would appear that the outlook for health related occupations remains strong. Overall, the health related field recorded the greatest number of responses from across the state. The strongest demand within health occupations was for registered nurses, medical administration, licensed practical nurses, medical secretaries and nurse aides.

Table 2. Total Number of Advertisements by LPN Related Occupation

Occupational title	Number of Advertisements
Domestic Nurse	50
Licensed Practical Nurse	186
Geriatric Domestic Nurse	82
Total	318

Completion and Placement

Examination of data provided by the Office of Vocational Education revealed that completion and placement rates for LPN's were quite good. Presented in Table 3 is a completion information report prepared in May of 1985. The table includes the number of vocational education trained LPN graduates by year, the percent completion rate, and the number and percent placed in the occupation.

Table 3. LPN Completion/Placement Data by Year

School Year	Completion		Placements	
	Number of Completers	Percent Completed	Number of Completers	Percent Completed
1979-80	425	69	404	95
1980-81	466	72	426	91
1981-82	545	69	511	94
1982-83	569	66	450	79
1983-84	762	72	Not Available	

The number of program completers averages over 550 per year, a figure closely related to the need for approximately 600 LPN's per year identified in Kentucky's 1985 Supply/Demand Analysis Report. Placement rates have been unusually high, particularly when considering that a good number of these individuals tend to seek employment near their home or place of training.

The percentage of completers who pass the LPN licensure examination is also very high. Apparently, the schools are successfully preparing their program completers. Examination data from April, 1984, are presented in Table 4. At the time of the preparation of this report, complete examination data had not been obtained. It is, therefore, quite possible that these data reveal unusually high pass rates. complete data will be obtained for the PHASE TWO report of this project.

Informal Survey Results

During the summer and early fall of 1985, informal interviews were made of 10 directors of nursing at extended care facilities in Boyle, Mercer, Lincoln, Jessamine, and Rockcastle counties. The results of these interviews can in no way be considered legitimate estimates of the entire population to be studied in PHASE TWO. Also, only extended care facilities were included. The purpose of the interview was to sample the awareness level regarding the pending KNA resolution addressing the entry level into nursing practice and to explore their thoughts as to the effect it would have on the quality and cost of health care to the client. A summary of their responses is presented below.

All of the directors were aware of the pending resolution. However, two were not aware of the time frame defined by the KNA. All 10

directors interviewed voiced a fear of decline in the quality of health care delivered if the pending resolution should become law. Their fears were based on monetary considerations and available manpower. All indicated that their current budget would not support an all registered nurse staff even if one could be found. The general concensus was that the added costs would have to be passed on to the clients at a time when cost containment is a critical issue. According to these directors, coupling this perceived increase in health care cost with current cuts in medicare benefits would result in less accessability of extended care facilities to clients. There was agreement that there should be an increase in the overall quality of health care with an all-registered nurse staff; however, there was not agreement that increases in quality would be cost effective for the client. Additionally, they did not feel that there would be an adequate supply of registered nurses available in these small communities, particularly nurses interested in long-term care. One reason cited for this lack of interest in long-term care was the limited exposure to the gerontological client in the curriculum of the registered nursing student. The routinized care required of the chronic client was also pointed out as being unattractive to the registered nurse.

TENTATIVE CONCLUSIONS

Based on the documents reviewed, the preliminary survey results, and personal interviewed conducted as part of PHASE ONE, several tentative conclusions have been formulated. The task in PHASE TWO of this project will be to further investigate these statements and, with the assistance of an advisory committee, generate recommendations

regarding the future needs for trained persons in this occupation.

Among the tentative conclusions reached are the following:

1. While it is, of course, desirable to increase the level of preparation for both professional and technical nurses, there remains a need in the health care industry to retain the position of Licensed Practical Nurse.
2. Existing manpower data support the conclusion that additional LPN's will be needed in future years.
3. LPN's trained in Kentucky's existing programs appear to be adequately performing those nursing services which they are authorized by law to perform.
4. There is a consensus that health care costs would increase if the LPN nursing level were eliminated. An objective of the health care industry is cost containment.
5. Rural areas might well suffer nursing shortages if the LPN nursing level were eliminated.
6. It appears that nursing homes and extended care facilities would be affected most if the LPN level were eliminated.
7. The LPN program is more clinically intense than the ADN programs. In 11 months the LPN probably receives more clinical training and experience than does the ADN in the two-year (18 month) program.
8. Partly due to the increasing costs of health care, there appears to be a trend toward more home health care, resulting in implications for both the LPN and the RN.

9. Our elderly are living longer, thus increasing the need for more long-term care facilities.

   --Will RN's be attracted to the routinized care of the chronic client?

   --Can nursing homes and extended care facilities afford the added cost of an all RN staff?

10. A high percentage of program graduates are placed in the industry.

11. A high percentage of program completers pass the LPN licensure examination.

12. There are a variety of nursing duties to be covered, some less desirable than others. Would the "new" nurse be prepared to accept the responsibility for doing the labor intense tasks now assigned to the LPN?

13. A final "tentative" conclusion is difficult to express and probably controversial to discuss. Based on the limited data gathered to date, it appears that there presently exists a match between the needs of the job, the LPN programs, and the individuals who enter the programs and ultimately the industry. Many program enrollees tend to be somewhat older than persons entering RN training, they tend to come from economically disadvantaged settings, many have been on some type of public assistance, they appear to be used to hard work, and they will do the lower-level tasks assigned to LPN's. LPN training and employment provide a way for them to succeed,

particularly in rural settings where the schools and the county's health care facilities are the major employers. They have an opportunity to become taxpayers. Thus, it appears that the LPN is needed by and serving the health care industry, while at the same time the opportunity provides a social benefit to the LPN.

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